

GREENS CREEK SURFACE EXPLORATION 2016 WORK PLAN

Hecla Greens Creek Mining Company (HGCMC) plans to conduct a single-season surface exploration program in 2016. The activities proposed will occur on patented and unpatented claims within the immediate mine area and on the Exchange Lands, inside the Admiralty Island National Monument. Exploration activities to be conducted include reconnaissance and detailed geological mapping, and geochemical sampling (rocks and soils). These roadless and helicopter-supported activities entail no significant surface disturbances or degradation. HGCMC will also manage a diamond drill core drilling program totaling 10,000 feet (4 to 6 drill holes) divided between two prospects. A maximum of 6 pad sites will be utilized in 2016. In order to build drill platforms and safe helicopter landing zones for each site, small areas will need to be cleared. One helicopter, support personnel, and all field and drill crews will operate from the HGCMC camp and port facility at Hawk Inlet. An additional helicopter based in Juneau will be utilized for drill moves. Surface activities could commence as early as April and continue through to the end of October.

All exploration and reclamation work will be completed within the 2016 season and are not a commitment to any activities in 2017 or beyond. Plans for an exploration program in 2017 or subsequent seasons, if any, will be developed and proposed after the 2016 season results are evaluated.

Reconnaissance: Helicopter-supported reconnaissance-style (1"=200' to 1"=1000' scale) geologic mapping will be conducted throughout the Land Exchange area within the Admiralty Island National Monument. These activities include geologists traversing the ground to and from existing roads and helicopter landing sites, which are often located on open ridges, creek bottoms, meadows and/or muskegs. No new landing sites will be cleared, except near drill sites (which is described below). Small rock, and soil samples (1.5 pounds/650 grams) are periodically collected with locations marked by use of handheld GPS locator units. Reconnaissance mapping will entail very little to no impact to the biological system within the Land Exchange boundary.

Prospect Work: Geological, and geochemical work are planned for the Gallagher, and Big Sore prospect areas within the Land Exchange boundary. Activities scheduled will consist of geological mapping and sampling of rock outcrop. Mapping will entail no impact and geochemical sampling will entail very little impact to the biological system within the aforementioned prospect areas. There will be no cutting or falling of live trees and no disturbance of the topsoil during the mapping work. Geochemical rock sampling will require removal of approximately 1.5 pounds (650 grams) of rock from outcrop occurring naturally on surface. All field equipment will be hand compact. All personnel and equipment will be transported to and from work areas by helicopter, or by truck via existing roads, or by walking. There will be no use

of motorized vehicles off existing roads. These are non-invasive work activities with all field equipment and trash being removed daily from work areas.

Drilling: Six (6) sites are located on the attached map, Figure 1, and listed with legal locations and GPS locations coordinates in Table 2. Of these six (6) sites; five (5) are proposed new drill sites and one (1) site is to be utilized for set-up of a radio repeater antenna, which will enhance communication and safety of personnel in the field. From each drill site one to four holes may be drilled. Fieldwork and early season drill results will dictate which sites will be cleared for subsequent drilling activities. Drill sites will not be cleared or otherwise disturbed until HGCMC is committed to drill from that site.

All drilling will be supported by one project-dedicated helicopter (Hughes 500D) based at Hawk Inlet. An A-Star B2 or B3 will be used for drill moves and will transit from Juneau one to three times a month. One drill rig, with two crews of two people plus one supervisor (5 people total) will be mobilized for this program. The drill crews will be housed at the Hawk Inlet camp facility. The drill rig will be crewed on a 24-hour basis, weather permitting.

The drill site will consist of a cleared area of such a size to accommodate a 24 feet by 24 feet drill platform, storage area for all supplies associated with drilling, and allow for the safe helicopter long-line slinging of equipment and supplies. Typical dimensions of a cleared drill site are 60 feet by 80 feet, but vary greatly with terrain and prevailing wind conditions. The drill platform will typically be constructed using stumps of cleared trees as uprights where possible, and some of the main supports will be constructed using trees cleared for the drill site. Rough cut, non-treated 8"x 8" to 12"x 12" dimensioned lumber will be used for some of the main supports and upper tiers of the platform. Each drill platform will be decked with 2"x12" rough-cut boards. All dimensioned lumber will be removed upon completion of drilling. Only portable tools, such as gas-powered chainsaws, will be used in drill site clearing and construction. Separate helicopter landing pads will only be constructed in areas where no suitable landing zones are located within 400 feet of the drill pad.

Materials will be transported via helicopter daily to and from the drill site. All diesel fuel will be stored in double-walled aluminum 30-gallon tanks and placed within a secondary containment capable of holding 110% of the primary volume. Domestic waste will be removed twice daily, at the end of each shift. A portable latrine will be flown from the 860 helipad to the drill site for use, and will be flown for cleaning twice weekly. All drilling materials that may attract bears (drilling fluids, etc.) will be stored in steel lock boxes when not in use at a drill site.

The drill contractor will be required to complete an environmental pre-shift checklist on the drill and water supply pump sites prior to each shift (twice daily). The environmental pre-shift checklist, shown as Appendix 1 provides a system for the drillers to catch leaks and prevent the accidental spill of hydrocarbons and/or drill fluids, and holds them accountable for environmental compliance. HGCMC personnel will visit the drill rigs at a minimum four times a week, but most likely daily, to insure and document environmental compliance.

Water for the drilling operations will be sourced from nearby streams under existing permits from the Alaska Department of Natural Resources. The water will be gravity fed to the drill sites wherever feasible using a 2-inch supply hose. A diesel powered supply pump will be used where gravity feed is not possible. The supply pump and its fuel tank will be permanently mounted within a covered secondary containment system, preventing escape of any hydrocarbons. The pump system will be inspected each shift, during the environmental pre-shift, and will be checked periodically during shift by the either the driller or helper. Appendix 2 explains and diagrams Greens Creek's Water Managements Practices for Surface Core Drilling.

The drilling fluids to be used include a partially hydrolyzed polyacrylamide, a copolymer of acrylamide and sodium acrylate, and bentonite, which are approved for use by the Forest Service

and deemed safe for the environment. Drill cuttings will be contained within the cleared drill site using settling tanks and sumps. The sumps will either be dug into the ground, or where that is too difficult, they will be constructed using the cut timber and lined with geo-fabric. Drill water with cuttings and drill fluids will not be allowed to enter any active streams. Drill sites will not be located within 200 feet of active streams.

Upon termination of drilling at a drill site, all contaminated and non-native materials and equipment will be removed. Drill cuttings will remain within the constructed sumps, excess geofabric will be removed. Any settling tanks used will be removed. Wherever possible, vegetation removed during construction of the drill pad or sumps will be saved and used to reclaim those areas cleared to the mineral soil, otherwise natural re-vegetation will be allowed to occur. Cameradated digital photographs of each site will be taken to document cleaned drill sites and provided to the Forest Service in compliance with requirements within one month of completion of project.

Communications between the remote drill sites and Hawk Inlet offices will be done by installation of a radio repeater tower. A specifically proposed site will be used for the repeater unit, which will be installed along with a rechargeable power source. The repeater unit is housed in an 18" x 48" x 24", drab brown case, with an attached 72" antenna (Appendix 3, Figure 1). The power source will consist of two 40 watt solar panels, a charge inverter, and two 12 volt sealed deep cycle gel lead acid batteries. Each of the solar panels will be mounted in series to a single rod tower that is secured to the case. The case for the repeater and associated equipment will be anchored at two points using two 0.5" anchor bolts. The radio repeater facilitates communication between Hawk Inlet personnel and the remote drill sites, permitting immediate response to emergencies at the remote drill site.

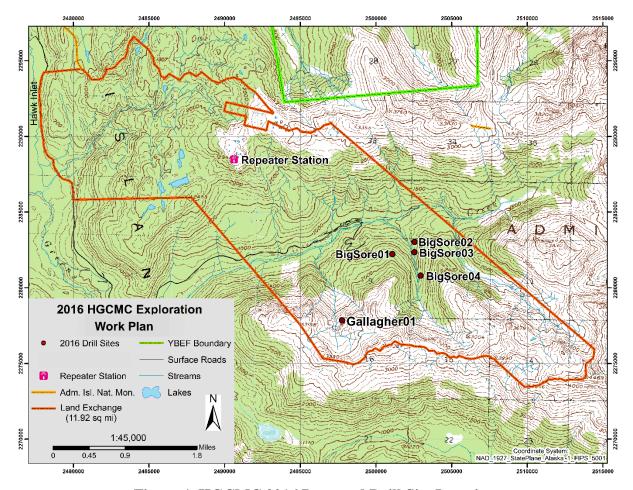


Figure 1. HGCMC 2016 Proposed Drill Site Locations

Pad	Status	SP27_X	SP27_Y	Township	Range	Section	Qtr_Sectn	UTM83_E	UTM83_N	SP83_E	SP83_N	Lat_wgs84	Long_wgs84
Gallagher01	Proposed 2016	2497766	2277837	T. 44 S.	R. 66 E.	16	NW	521321	6436027	2497726	2277314	58.06521393	-134.6386584
BigSore01	Proposed 2016	2502559	2283031	T. 44 S.	R. 66 E.	10	NW	522750	6437638	2502519	2282508	58.07961232	-134.6142797
BigSore03	Proposed 2016	2502539	2282352	T. 44 S.	R. 66 E.	10	NW	522748	6437431	2502499	2281829	58.07775344	-134.6143343
BigSore02	Proposed 2016	2501089	2282230	T. 44 S.	R. 66 E.	9	NE	522307	6437385	2501049	2281707	58.07736423	-134.6218159
BigSore04	Proposed 2016	2502950	2280800	T. 44 S.	R. 66 E.	10	NW	522883	6436961	2502910	2280277	58.07352189	-134.6121001
Repeater	Proposed 2016	2490626	2288484	T.43 S.	R. 66 E.	31	SE	519082	6439228	2490586	2287961	58.09406	-134.67632

Table 1. HGCMC Proposed Drill Sites with Legal and GPS Location

Appendix 1

Surface Drilling Pre-Shift Environmental Checklist

Driller	Rig	_ Date	_Shift D	ay/Night
Water Pump			Yes No	Initial
Pump set-up is level, not	filled with water, and fre	ee of fuel and oil.		
Fuel Tank is not leaking.				
Transfer fuel barrel (if pr	resent) is within over-pac			
Boom and absorbent mat	s are present and dry.			
No hydrocarbon sheen is	present in water.			
All equipment and suppl	ies are located well above	e water level.		
Drill Site			Yes No	Initial
Full fuel barrels are store	d within containment tub	os.		
Tubs are level, filled with	n less than 2 inches of wa	ater, and covered.		
Empty fuel barrels are ste	ored upright with bungs p	olugged		
All other oils, hydraulic	fluids, etc. are properly st	tored.		
No spills are present at o	r near drill site.			
Boom and absorbent-mar	ts are present and dry.			
Empty barrels are presen	t to hold contaminated m	aterial.		
Drill Discharge W	ater		Yes No	Initial
Drill cuttings and water a	are following planned cou	ırse.		
Straw bales/Silt fences an	re properly located.			
Drill water is NOT withi	n 200 feet of running wat	ter.		
Drill water does not have	a hydrocarbon sheen or	smell to it.		
ANYTHING CHECKE RESUMES.	D 'NO' MUST BE IMN	MEDIATEY FIXED	BEFORE I	ORILLING
FALCON FOREMAN, DEPARTMENT MUST (Attach Spill Report	BE IMMEDIATELY	*		F A SPILL
Notes or Corrections	Made:			
Spill or Non-Compla	int Situation reported	to	Time	

Appendix 2

Water Management Practices for Surface Core Drilling

The Greens Creek mine plans to employ one surface drill rig during the field season (typically May to September) of 2016. Greens Creek is submitting an Exploration Plan to the United States Forest Service that includes the location of the proposed drill sites and a description of the drilling methods to be employed. The standards and practices that Greens Creek and the drilling contractor will be held to are documented in the Surface Diamond Drilling Environmental Standard (Appendix 3). Described below are the methods and controls for managing the water used in drilling operations, and shown in figure 1a.

Water is necessary for drilling operations and is used for; cooling and lubricating the drill bit, lifting the cuttings from the hole, and cooling the drill itself. The water will be sourced from nearby creeks. The creeks to be utilized will typically be small (no more than 3 feet (1 meter) across) and are to be third or fourth order creeks. Water will be supplied to the core drill either by a diesel pump or gravity fed through a series of hoses. A gravity system will always be used where possible to avoid placing a fuel driven pump near a creek. This may not always possible if a source large enough does not occur above the drill site. In either case, an intake hose is placed within a natural pool. The intake is to be screened with ½ inch openings when water is gravity feed. The intake hose will be placed in a 5-gallon bucket with holes drilled/cut in the bottom and sides when a pump is utilized. The pump and 20 gallon fuel tank are to be contained within a ~200 gallon plastic tub for secondary containment and covered with a tarp. The pump will be set near a stream by helicopter long-line to be within easy reach of the intake hose (<20 feet). A small pad may be constructed for the tub to set-on to insure stability (see photo 1). Twenty gallons per minute (20-GPM) is the maximum withdrawal rate for the pump. If a diesel pump is utilized, the site will be inspected every shift (twice a day) by the drillers as part of their environmental pre-shift inspection (see appendix 1). These sites are also to be inspected by Greens Creek personnel 4-7 times a week.

The drill sites that water is transported to, will consist of a \sim 24-feet by 24-feet platform constructed at least 200 feet from a flowing stream. Environmental and safety factors are very strongly considered when locating a drill site. Water will be supplied through a series of 2 inch hoses to the mud tank located at the drill site. The water pump site will be inspected at the start of each shift and then the pump operates continuously at a constant withdrawal rate for 10-12 hours/shift (2 shifts /day). The driller controls the amount of water utilized during drilling by means of a 'T' valve at the mud tank. When no additional fresh water is required for drilling operations, the excess clean water will be directed well away from the drill so that it will not potentially mix with any drill water. The clean water will be discharged onto the forest duff and ultimately flows back into the drainage by subsurface flow. The mud tank is a \sim 2,000 gallon metal tank placed on the drill platform where water is mixed with various drill fluids and pumped down the hole. Generally no water will be returned to the surface (no circulation) when the hole is collared due to the

porous nature of the overburden. Under these circumstances the drillers will be required to inspect down slope numerous times during their shift to insure that drill water and cuttings are not surfacing below the drill. The Forest Service requires that no drill water enters a flowing creek. Greens Creek standards stipulate that no drill water leaves the immediate cleared area of the drill site (50 feet from the drill).



Photo 1. Supply pump located above a creek on a constructed platform.

By the time circulation is established, a series of sumps will be constructed below and downhill from the drill site to contain the drill water (see photo 2). The first sump will be lined with plastic (generally a piece of 32 ppm geofabric) located under the pad and surrounding the drill casing to capture all the drill water and direct it into the sump(s) below. The mud tank and PolyDrill system (or other settling system) will be positioned such that if they overflow, all the water will be collected by this upper sump. The lower sumps will be constructed above the ground surface using fallen timber and lined with geofabric to stop/settle cuttings and filter excess water. One or more 120V sump pumps will be placed in the lowest sump to return water back to the drill after the cuttings have settled within sumps above. This re-circulated water first reports to the PolyDrill system where much of the remaining cuttings are settled through a series of baffles (See photo 3). The cleaner water then is fed back to the mud tank and re-used. Cuttings collected

within the PolyDrill system are discharged through the bottom valve into a filter fabric bag usually contained within one of the sumps. Depending on the amount cuttings collected and number of holes drilled for a drill site, several filter bags may be used. Re-circulating the drill water greatly reduces the volume of fresh water needed and also reduces the amount drill water to contain at the drill site.



Photo 2. Shows the PolyDrill system in the fore ground and two filter-lined sumps

Clear water runoff during a rain event will be diverted around the sumps to prevent any unnecessary additional water volume to manage in the re-circulating system. If cuttings should leave the sumps (containment), drilling will be stopped and mitigation will be undertaken, which may include building an additional sump or reinforcing the one leaking. If no solution can be found, the drillhole will be abandoned, the drill will be moved to another site, and the pad will be cleaned up.



Photo 3. PolyDrill System and mud tank

The sumps and all other aspects of drilling will be inspected before drilling commences as per the environmental checklist described above. The driller and helper will also be required to make frequent site inspections throughout their shifts. Additional inspections will be made by geologists and other Greens Creek personnel on a near daily basis (at least 4 times per week).

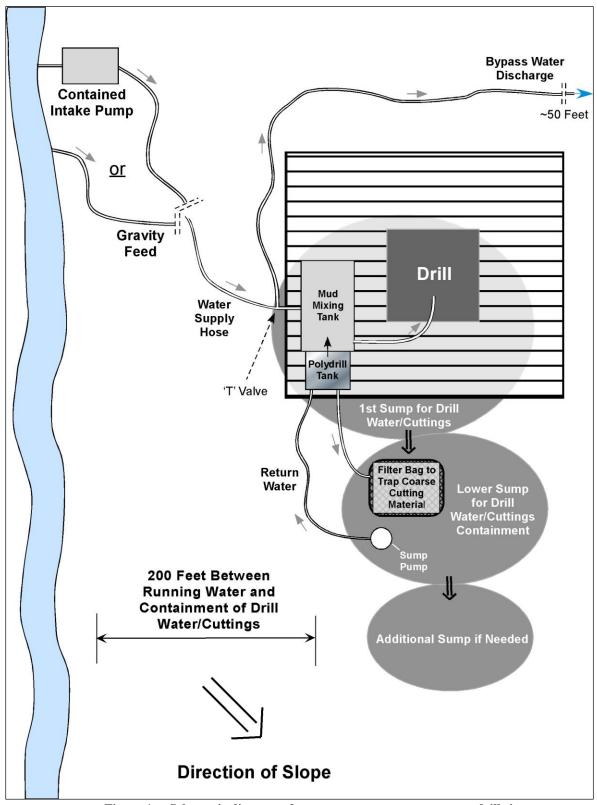


Figure 1a. Schematic diagram of water management at a remote drill site.

Appendix 2

PURPOSE:

- Prevent environmental disruption by complying with the HGCMC Environmental Standard Operating Procedures.
- Integrate protective measures into the planning process to prevent or reduce impacts upon the environment.
- Apply technically proven and practical environmental protection measures throughout the drilling process.
- Restore drill sites to acceptable environmental condition when sites are vacated.
- Hold all employees, contractors and supervisors accountable for the implementation of this standard.
- Commit to developing new methods to advance the effectiveness of future environmentally sensitive surface drilling at Greens Creek.

SCOPE:

This Standard covers all activities in surface diamond drilling which interact with the environment including building drill platforms and drill water sumps, the drilling process, as well as restoration of drill sites once drilling has ceased. This Standard also includes guidelines for storage of materials used for drilling as well as spill reporting guidelines for HGCMC and contractors involved with surface exploration at Greens Creek.

RESPONSIBILITY:

The surface exploration supervisors and contract drill foreman are primarily responsible for ensuring compliance of this procedure. Each HGCMC and contractor employee is responsible for compliance with this procedure associated with the surface diamond drilling.

HEALTH AND SAFETY:

All employees, contractors and visitors are required to perform tasks in a safe manner, following safe practices identified through HGCMC's Safety Standards, or officially approved Standard Operating Procedures. The safety of people is first priority and must be considered in the design and implementations of these procedures.

ENVIRONMENTAL:

Potential consequences of departing from standard include:

- Unnecessary spills of hydrocarbons or drill waters into water or onto the ground.
- Delays in drilling operations.
- Fines and penalties levied by regulatory agencies.
- Degradation of positive company environmental reputation.

STANDARD OPERATING PROCEDURES:

A. Construction of Drill Platforms

- Geologists should carefully consider environment when selecting drill sites.
- Drill sites should be located approximately 200 feet horizontally from running water/creeks including drainages which may be periodically dry. A minimum of 50 feet from drainages will be acceptable in exceptional circumstances such as difficult terrain.

- Temporary diversion structures may be used if required.
- When available, drill site construction materials will be comprised of local materials derived from the clearing of the drill site and/or helipad.
- The area disturbed by drilling (the footprint) must be minimized.
- Hydrocarbons in excess of 1 Gal will be placed in secondary containment during the construction process and absorbent material will be proximally located.
- In compliance with the USFS requirements, trees will not be fallen into or over stream channels.

B. Pre-Drilling Contactor Requirements

- All HGCMC environmental requirements should be included in the drilling contract and communicated to the drill operators.
- Drilling equipment must be inspected before work commences to ensure it is fit for work (e.g. hydraulic lines, fuel/oil leaks).
- Drill equipment must be cleaned prior to mobilization onto remote drill site to prevent dispersion of hydrocarbons.
- All drilling personnel are to be trained in the containment and clean-up of spilled hydrocarbons.

C. Building of Sumps and Containment for Drill Waters

- Every effort will be made to minimize the contact of natural waters with the drilling process.
- Water should be conserved by recirculating fluids where practical.
- Sumps will be built down slope of drill sites to trap drill waters and capture any runoff from the site.
- The Polydrill system and holding tank are to be used to remove suspended solids (drill cuttings) from the drill water.
- Filter fabrics will be used to line sumps.
- Biodegradable materials and products should be used whenever possible especially when intended to be left in the ground.
- Water pumps should be placed in sumps to recirculate water.
- Continuous engineering and modifications to sumps should be used to control drill water when needed.
- Sump design and number of sumps built will be site specific and decided upon by all parties involved. Final approval for all sumps will be given by a company representative.
- If circulation is lost in a drill hole, a down-slope ground and creek check must be performed regularly to determine if water is surfacing and inadvertently entering creeks.
- The area of disturbance will be sufficient to control drill waters but every effort must be made to keep the disturbance to a minimum.
- Sumps must allow the escape of people or animals, and must be fenced if depth is greater than 4 feet.

D. Containment of Stored Hydrocarbons (at drill, pump and staging areas)

- All 55 Gal fuel drums and 5 Gal buckets of oils/grease are to be stored in covered secondary containment.
- All secondary containment vessels will be kept level.
- A maximum of 2 inches of standing water will be allowed in secondary containment vessels.
- Fluids (water/hydrocarbons) accumulated in secondary containments will be transferred into appropriate containers and removed from the site.

- Fuel tanks on the drill are double-walled and hold 150 Gal to minimize frequent refueling.
- Empty fuel barrels are to be stored upright with the plugs in place.
- Absorbent materials must be present and dry.
- Hydrocarbon contaminated material containers must present with all contaminated waste placed inside.
- All containers will be labeled to mark the contents, the date the container was filled, and the name of the contractor or individual who generated the waste.
- Waste containers will be removed from the drill site as frequently as required.

E. Water Pump

- Gravity fed water should be used whenever possible to eliminate the need for a water pump.
- The pump will be placed so it is level and stable.
- If possible the pump will be set above any obvious flood level of the stream.
- The pump must be within covered containment.
- The pump containment can have a maximum of 2 inches of water present.
- Water discharged from the containment will be accumulated in a contained 55 gallon barrel with fresh absorbents placed in the water. If no sheen is present the accumulated water may be discharged onto the ground adjacent to the pump site.
- Transfer fuel barrel and associated supplies must be within containment if being stored at pump.
- Absorbent materials and booms must be present and dry.
- No hydrocarbon sheen can be present in water of creek. If a sheen is found, the HGCMC Surface Exploration representative must be notified immediately (see reporting spill below).
- Supplies must be located well above water level.
- Large volume fuel tanks should be used on pumps to minimize need for frequent refueling.

F. Drill Site Environmental Checklist Pre-shift Forms

- Mandatory pre-shift cards are to be filled out by both day and night shift drill crews before drilling activities can take place (Appendix A).
- If any boxes are marked "NO" on the Environmental Pre-Shift form, corrective measures must be taken immediately and documented.
- HGCMC Surface Exploration representative must be notified immediately, and a description of the unsatisfactory condition/ spill must be documented.
- If warranted, HGCMC Environmental Department will be notified by Surface Exploration department or drill foreman.
- Geologists visiting drill sites will fill out a similar environmental checklist (Appendix B).
- Any Surface Exploration representative that finds an environmental issue at the drill site must first notify the drillers and request immediate action to rectify it, and second, the Exploration Department to report the situation.

G. Reporting Spills

- Existing HGCMC Standard Operating Procedure for spill reporting guidance must be followed by all company and contractor personnel.
- Minor drips, splashes and messes that occur and are cleaned up during the normal course of a job need not be reported as spills to the environmental department unless they are into water, but should be documented on the pre-shift checklists.

- The following guidelines must be followed for reporting spills to the environmental department:
 - i. Any size spill into or immediately adjacent to water or spills to land greater than 1 gallon. Report right away via phone or radio. Fill out Supervisor's Investigation Report (Form A1.4.0)
 - ii. Spills to land less than 1 gallon

Report by end of shift via phone, radio or note.

iii. Report information required:

Date and time of spill

What material spilled and how much

Where spill occurred, location and size of area affected

What cleanup was done

Types of materials used for cleanup and where they were disposed

What spilled material was recovered, about how much and where was it put?

• In the case of a reportable spill, all drilling activities must cease until the situation is controlled and remediation plans are in place.

H. Interaction with Wildlife

- All trash must be removed from drill site at the end of each day.
- Drilling products and materials that may attract bears will be kept to a minimum at the drill site.
- If drill products and materials that attract wildlife are stored at the drill site they must be stored in an enclosed metal container that can be secured from entry by wildlife.

I. Clean-Up and Restoration of Drill Sites

- Drill sites must be kept clean and orderly throughout the drilling process.
- No open ground fires are permitted on the drill site.
- Upon finishing at a drill site all foreign materials must be removed, including non-native wood products.
- An effort must be made to recover all casing.
- Restoration of sumps must include removal of excess filter fabric.
- Whenever possible, sumps should be covered over with the original soil removed during construction.
- All sites will be photographed and date-stamped to document that clean-up and restoration are complete.

J. Accountability, Implementation and Maintenance of Environmental Standards

- Every person at HGCMC is accountable for the environment.
- It is the responsibility of each employee and contractor to report a spill to HGCMC exploration personnel and/or the Environmental Department immediately.
- Exploration supervisors and drill foremen are responsible for ensuring implementation of these standards at drill sites.
- Suggestions from all levels of involvement should be encouraged and carefully considered by supervisors and foremen.
- Continuous improvements and revisions of this standard will be necessary.

Appendix 3

Temporary Radio Repeater station



Figure 1. Repeater case with batteries and antenna mounted.